

SECTION 07240

EXTERIOR INSULATION AND FINISH SYSTEMS

LANL MASTER CONSTRUCTION SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the Engineering Standards Manual (ESM) Architectural POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within "stars" during editing.

Specification developed for ML-3 / ML-4 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

This specification meets EPA's CPG Green Requirements.

PART 1 GENERAL

1.1 SUMMARY

- A. Exterior composite wall cladding system including insulation and applied coating finish.

1.2 REFERENCES

Codes and standards – Comply with the following codes and standards including current editions, revisions and supplements.

- A. ASTM C578 - Rigid Cellular Polystyrene Thermal Insulation.
- B. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- C. EIMA (Exterior Insulation Manufacturers Association) - Guideline Specification For Exterior Insulation and Finish Systems, Class PB and Class PM.
- D. NFPA 255 (National Fire Protection Association) - Test of Surface Burning Characteristics of Building Materials.
- E. UL 723 (Underwriters Laboratories, Inc.) - Tests for Surface Burning Characteristics of Building Materials.
- F. EPA (Environmental Protection Agency) CPG (Comprehensive Procurement Guideline), <http://www.epa.gov/cpg>.
- G. International Conference of Building Officials – International Building Code 2000

1.3 DEFINITIONS

- A. System: The System shall consist of the fasteners (adhesive or mechanical), insulation board, reinforcing mesh, reinforcing trim, base coat and finish coat, with approved accessories sealants, backer rods, etc.

1.4 SUBMITTALS

- A. Submit the following in accordance with the requirements of Section 01330, Submittal Procedures.
 - 1. Manufacturer's Literature indicating installation specifications and maintenance requirements of the materials specified..
 - 2. Samples of standard colors for selection by LANL. After color selection submit 2'-0" by 2'-0" (minimum) sample of exterior insulation and finish system in color and texture selected by LANL applied to gypsum sheathing substrate, including appropriate mechanical fastener as part of sample assembly.
 - 3. Shop drawing(s) indicating support framing, details and method of attachment. Do not commence work until Shop Drawing(s) have been approved.
 - 4. Certificates of Compliance of Materials that are specified by referenced codes, specifications and standards listed in paragraph 1.2. The certification shall exactly identify each item by the designation which will appear on the packaging of that item.
 - 5. Certificates of approved applicator indicating at least 5 years experience installing exterior insulation and finish system of type specified. Certificate shall be initiated by "Systems Manufacturer", included shall be a list of completed projects, respective Owner/Agency, Owner/Agency address, and responsible individual to contact to verify applicator's execution of the "System".
 - 6. Submit and comply with ICBO report(s) of Exterior Insulation and Finish System's manufacturer.

1.5 QUALITY ASSURANCE

- A. Qualifications of Installer: Certified applicator approved by the manufacturer of exterior insulation and finish system, and shall have a minimum of 5 years experience in installation of specified system and shall submit evidence such as a list of installations and responsible party to contact to verify experience in accordance with paragraph 1.4, A, 5 above.

- B. Codes and Standards: Comply with the following codes and standards including current editions, revisions and supplements.
1. ASTM C150, Portland Cement.
 2. ASTM E84, Test for Surface Burning Characteristics of Building Materials.
 3. ASTM C578, Insulation Board, Thermal (Polystyrene).
 4. Provide installation meeting requirements of IBC.
- C. Single Source Responsibilities: Materials for the exterior insulation and finish system shall be from a single manufacturing source, or one that is approved by the system manufacturer.
- D. Prior to installation of EIFS and associated work, meet at Project site with installer, EIFS manufacturer representative, installers of related work and other entities concerned with EIFS performance and appearance, including LANL, installer's superintendent, and Contractor. Record discussions and agreements, and furnish copy to each Attendee. Provide at least 72 hours advance written notice to participants prior to convening pre-installation conference.

1.6 SITE CONDITIONS

A. Environmental Requirements:

1. Application of the System shall be at ambient temperatures and on unfrozen surfaces in accordance with manufacturer's recommendations.
2. Minimum ambient temperature for a duration period after installation shall be per manufacturer's recommendation.

1.7 GUARANTEE

- A. Upon completion of work, Contractor and Installer together with "System Manufacturer" shall furnish a written guarantee against any and all defects in materials and /or workmanship for a period of 5 years following final acceptance of work by LANL.
- B. The Contractor shall Guarantee that, upon notice by LANL, he will immediately make good any defects in material or workmanship, or both, within the same 5 year period covered by the guarantee, at no additional cost to LANL.

PART 2 PRODUCTS

2.1 GENERAL

- A. Furnish components from the system manufacturer or a source approved by the system manufacturer.

2.2 MANUFACTURERS

- A. Dryvit Systems, Inc.
- B. Senergy Division, Harris Specialty Chemicals, Inc.
- C. STO Corporation

2.3 EXTERIOR GYPSUM SHEATHING

- A. Glass mat gypsum sheathing board as specified in SECTION 09260, GYPSUM BOARD.

2.4 ADHESIVE

- A. Cement/Acrylic adhesive and basecoat shall be compatible with specific rigid insulation used and substrate to which it is adhered. Product to be designed for use with EIFS system as recommended by system manufacturer and applied in thickness to completely embed reinforcing mesh.

2.5 WATERPROOF BASE COAT

- A. Polymer based basecoat designed for use with EIFS system as recommended by system manufacturer, applied in thickness to completely embed reinforcing mesh. Use at sills, jambs, heads, parapets, horizontal surfaces, and finish coat.

2.6 WATER

- A. Water shall be clear, clean and potable, without foreign matter in solution which might affect color or setting qualities of cement, adhesive, or finish coat.

2.7 INSULATION BOARD

- A. Provide expanded or extruded polystyrene board conforming to ASTM C578, Type I requirements, with flame spread of 25 or less and smoke development of 450 or less in accordance with ASTM E84. Insulation board shall not exceed 2'-0" x 4'-0" in size.
- B. Use dimensions conforming to the following standards.
 - 1. Thickness: 2 inch thick at walls.
 - 2. Provide computer cut shapes for copings, sills, etc., configurations as indicated on the drawings, thickness not less than 3/4 inch or exceeding 4 inches.
- C. Provided extruded polystyrene board with a minimum of 9 percent recovered (recycle) material in accordance with EPA's CPG.

2.8 BASECOAT

- A. Use clean plastic container, free of foreign matter for mixing and preparing material. Do not use a container which has been used to store or cleaned with petroleum products. Size batches for complete use within 1 hour after mixing.
- B. Mix basecoat products in accordance with manufacturer's recommended written instructions.
- C. No other admixtures allowed.

2.9 REINFORCING MESH

- A. Reinforcing fabric mesh shall be alkali-resistant, balanced, open weave, glass fiber fabric made from twisted multi-end strands specifically treated for compatibility with the other system materials and comply with ASTM E2098 and as recommended by EIFS manufacturer.

2.10 FINISH COAT

- A. Provide a thoroughly mixed factory prepared finish coat as per manufacturer's recommendations until a uniform workable consistency is obtained. Small amounts of water may be added to aid in workability (if approved by manufacturer) depending upon application procedures and final texture required. No other admixtures are allowed.

2.11 SEALANTS

- A. Provide sealants approved by the system manufacturer.

2.12 ACCESSORIES

- A. Conform to recommendations of EIFS manufacturer, including trim, edging, anchors, and expansion joints. All metal items and fasteners to be corrosion resistant.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ensure that adjacent materials are protected from damage or staining during installation of exterior insulation and coating system.
- B. Do not begin work of this section and notify the Contract Administrator if substrate condition will adversely affect acceptable results.
- [C. Prepare surface of [masonry] [concrete] in accordance with system manufacturer's written instructions.]

3.2 INSTALLATION

- A. Install system in strict accordance with the system manufacturer's written instructions.

3.3 INSTALLATION OF EXTERIOR INSULATION

- A. Application of insulation board to vertical surfaces shall begin at the base from firm permanent support. Board shall be applied horizontally in a running bond. Precut board as required to fit openings and projections, stagger vertical joints and vertical joints at corners.
- B. Apply mixed adhesive, or waterproof adhesive where required, with notched trowel as recommended by manufacturer, to entire surface of the insulation board. Apply pressure over entire surface of board to insure uniform contact and high initial grab. Abut joints tightly and insure an overall flush, level surface.
 - 1. Irregularities of board greater than 1/8" in a 4 foot radius from a point must be rasped flush.
 - 2. Upon completion, no board joint shall be visible

3. Joints visible after installation of finish will be cause for rejection of work.
- C. Accessory items or expansion joints should be installed and completely beaded-in with adhesive. Accessory items are located on the drawings or as required by system manufacturer.

3.4 INSTALLATION OF FINISH SYSTEM

- A. Use a stainless steel trowel and apply mixed base coat, or waterproof base coat where required, to entire surface of board to a uniform thickness of approximately 1/16 inch.
- B. Immediately placing reinforcing fabric against wet basecoat and by trowling from center to edges, embed fabric into coating.
 1. Reinforcing fabric shall be continuous at corners and lapped not less than 2-1/2 inches at fabric edges.
 2. Avoid wrinkles in embedding reinforcing fabric. After embedment, fabric laps or joints shall not "telegraph" through to finish coat. Correct "telegraphing" defects, at Contractor's expense, prior to applying finish coat.
 3. Reinforcing fabric shall be fully embedded within coating.
 4. Backwrap edges of insulation board as recommended by system manufacturer.
 5. Install 2 layers of 12 oz reinforcing fabric at sills, jambs, heads, horizontal surfaces, parapets and up 6'-0" from finish first floor line at wall perimeter. At parapets, extend second layer of mesh 18 inches down both sides of wall. Where roof side is less than 18 inches, carry mesh to flashing. Surface of first layer shall be examined after curing for projections, loose strands, etc and corrected to produce a flat face. Second mesh layer shall be applied in the same manner as the first layer. Lapped edges of the mesh in the layers shall be offset.
- C. Extend waterproof basecoat 18 inches down wall from top of sills and both sides at parapets. Where roof side is less than 18 inches, carry waterproof base coat to flashing. At walls, extend up 24 inches from finish grade or as indicated on drawings.
- D. Base coating surface shall be dry and hard before proceeding to finish coat application.
- E. Verify final basecoat surface tolerance is within 1/8 inch in 4 foot radius of a point measured with a straight edge. If tolerances exceed 1/8 inch, rework surface to acceptable tolerance prior to finish coat application.
- F. Apply primer in accordance with manufacturer's recommendations.

- G. Prior to installation of finish coat, inspect base coat for evidence of mesh telegraphing, visible joints between mesh layers, visible joints between insulation boards or areas out of true plane beyond allowable tolerances. If any of these conditions exist, do not proceed with finish coat installation until faulty installation of finish substrate has been rectified to the acceptance by LANL.
- H. Finish to be applied by spray method, directly over reinforced basecoat material to a minimum attainable thickness consistent with uniform coverage.
- I. The final thickness shall be 1/16 inch minimum or thicker, in order to completely and uniformly cover areas of basecoat material.
- J. Final plane tolerance of finish system shall be 1/8" in a 4 foot radius of a point measured with a straight edge.

3.5 FIELD QUALITY CONTROL

- A. Inspect system for plane tolerances prior to execution of each phase of the system. If tolerances are larger than those specified, rework problem areas, at Contractor's expense, prior to installation of subsequent phase of installation.
- B. Upon completion of the installation, request LANL inspection of the installation to verify that the work is complete, properly installed and acceptable. If faulty work is encountered, remove and reinstall with new work at Contractor's expense to the acceptance of LANL.

3.6 CLEAN UP

- A. Remove debris resulting from the work performed.
- B. Repair or replace damaged or disfigured surfaces caused by work of this section

END OF SECTION

Do not delete the following reference information:

FOR LANL USE ONLY

This project specification is based on LANL Master Construction Specification Rev 2, dated August 6, 2003.